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Female Ministers, Governance and Reforms

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Abstract:

In this paper, we test whether the gender composition of government affects the quality of governance and reform efforts, thus connecting the literature that documents the effects of gender on decision making to the literature on the determinants of reforms. We find that countries with a higher share of female ministers and a higher share of female MPs tend to score somewhat better in terms of regulatory quality and government effectiveness, and in terms of reforms in these areas, but also that tackling possible endogeneity shows most of these effects to be insignificant. Our results thus do not provide support for the claim that 'conducting reforms is not women's business', they rather suggest that reform is as much women's business as it is men's business.

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Introduction

On March 19 2010, the Ukrainian Prime Minister Azarov explained the absence of women in Ukraine's new government by the need to pursue reforms, indicating that 'conducting reforms is not women's business'. Prime Minister Azarov's statement made headlines internationally (see for example, Kaminska (2010) in the Financial Times and Harding (2010) in The Guardian) and caused a wave of protest both inside and outside Ukraine. In this paper, we provide an empirical test of this claim by studying the link between the governance and reform efforts of governments, and their gender composition.

Several academic studies have already documented the effect of gender on decision making. A first strand of this literature has focused on how the gender of CEOs or the gender composition of boards affects the performance and behavior of firms. Muravyev et al (2009), for example, find that firms headed by a female manager are less likely to receive bank loans, which can explain why female-headed firms are typically less leveraged. Adams and Fereira (2008) find that female board members are more involved in monitoring firms but can hamper firms' performance. A second strand of this literature focuses on state governance, investigating whether countries with higher female political participation, in government or in the electorate, allocate more to 'social' expenditures (Atchison and Down, 2009, Burton and Seiferling, 2009) or are less corrupt (Dollar et al, 2001, Sung, 2003). In a study on how the gender of Village Council heads affects policy outcomes, Chattopadhyay and Duflo (2004) show that leaders tend to favor investments in infrastructure which are directly relevant to the needs of their own gender. Finally, Krogstrup and Walti (2009) provide a median voter model that supports such gender effects: they show how adding risk averse women to the electorate will reduce budget deficits.

There is also a sizeable literature on the determinants of reforms. Amin and Djankov (2009a) and Guiliano et al (2009) for example, focus on the role of democracy while Amin and Djankov (2009b) focus on the role of natural resources. Campos and Horvath (2006) focus on determinants of reforms in transition countries and Lora and Olivera (2004) focus on Latin America. Most of these studies use country characteristics, rather than characteristics of the political leadership, to explain why some countries reform and others do not. An exception is

Dreher et al (2009) whom focus on how the education and profession of heads of government affects the implementation of reforms[1].

As far as we know, neither the studies that focus on the determinants of reforms nor the studies that focus on how gender affects decision making, have studied the link between the political representation of women in the government, and the quality of governance and reforms. Several studies, however, have found that women, on average, are less supportive of reforms. For example, Firebough and Sandu (1998) found that Romanian men were more likely to support marketization and democratization while Hayo (2004) found that women throughout Eastern Europe were less in favor of creating a market economy (see also Miller et al, 1994). Explanations that have been offered for these gender differences, range from gender-specific levels of risk averseness (see for example, Corson and Gneezy, 2009, for a review of the experimental evidence), to gender-specific impacts of reform (for example, Hayo (2004) offers as a possible explanation, that women in transition countries were hit disproportionally by the reduction in state-provided child care. Tsikata and Kerr (2000) focus on the gender specific impact of reforms in Africa).

Of course, even if women are, on average, less pro-reform, this does not necessarily mean that women in the government will make reform more difficult: assuming one can observe a person's intentions to reform, those forming the government can choose pro-reform female ministers, as there are plenty of pro-reform women, even if, on average, women are less pro-reform. Our study will shed light on this issue by regressing measures of quality of governance and changes in such quality (i.e. reforms) on the gender composition of governments.

Data and Methodology

Data about governance and reforms come from the World Bank's Governance Indicators (Kaufmann et al., 2009). These indicators, which are composite indicators based on various sources, focus on 6 areas of governance. In this study we focus on 'regulatory quality' and 'government effectiveness'. The 'regulatory quality' indicator aims at 'capturing perceptions of the ability of the government to formulate and implement sound policies and regulations that

[1] They do not include the gender of the head of government as explanatory variable.

permit and promote private sector development'. While the 'government effectiveness' aims at 'capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies'. We focus on these 2 indicators as both are linked explicitly to government policies. 'Reforms' thus can be defined as changes in 'regulatory quality' and changes in 'government effectiveness'.

The WB's governance indicators are available for 1996, 1998, 2000 and annually between 2002 and 2008, and give, for about 200 countries, a standardized score, which is comparable across years and countries.

Data on the percentage of women in ministerial positions come from various issues of the Human Development Report and the Inter-Parliamentary Union. Definitions vary slightly – an appendix gives the exact definitions and sources. Data are typically recorded at the beginning of the year. Data are available for 1995, 1996, 1998, 2001, 2005 and 2008.

Because we have data at irregular intervals and because implementing reforms requires time, we focus on 2 types of dependent variables. In a first regression (1), we use the average quality of governance over the period 1996-2008, thus focusing on the level of governance. To compute these averages for a given variable, we use the years for which we have data for that variable. In a second regression (2), we look at the change in governance between 1996 and 2008, hence at reforms.

$$(1) Y = \alpha_1 + \beta_1 X + \varepsilon_1$$
$$(2) \Delta Y = \alpha_2 + \beta_2 Z + \varepsilon_2$$

Our control variables cover the typical determinants of reforms and governance used in the literature. We include

- Indicators for the political regime, testing the hypothesis that democracy is good or bad for reforms and governance. We use the polity2 indicator from the Polity IV dataset, which scale ranges from +10 (strongly democratic) to -10 (strongly autocratic).

- Indicators for the level of economic development, testing whether rich countries have better governance and an easier time to reform than poor countries. We use GDP data from the online World Bank databank.
- Indicators for fractionalization of the population, testing whether fragmented societies have worse governance and a more difficult time to agree on reforms. We use the 1985 level of ethno-linguistic fractionalization of Roeder (2001).
- Indicators for 'crisis' situations, testing the idea that countries will react to a crisis by reforming. This can be captured by the lowest GDP growth in a given period. We use GDP growth data from the online World Bank databank.
- Indicators of previous reforms, testing whether previous reforms are often followed by more reforms. We capture this in the reform regressions by including the level of regulatory quality/government effectiveness at the start of the period.

We then address two possible concerns. First, one could argue that representation of women in government does not only happen through female ministers but also through female Members of Parliament (MPs). Using data from the Inter-Parliamentary Union[2], we therefore include the average share of female MPs over the period 1996-2008 as an additional explanatory variable. As before, to compute this average, we use the years for which data are available for a given country.

$$(3) Y = \alpha_3 + \beta_3 X + \gamma_3 MPs + \varepsilon_3$$
$$(4) \Delta Y = \alpha_4 + \beta_4 Z + \gamma_4 MPs + \varepsilon_4$$

Second, we address possible endogeneity concerns in two ways. First we instrument the average share of female ministers and the average share of female MPs by the number of years women have had the right to vote at the beginning of the period under consideration (that is, in 1996[3]) and by a dummy reflecting whether or not a women had presided the House of Representatives by that time. Our assumption is that, ceteris paribus, the longer women have had the right to vote the more they will be represented in the cabinet of ministers and in the Parliament. Similarly, a past female president of the House of Representatives can serve as a role model for women and

[2] http://www.ipu.org/wmn-e/classif-arc.htm
[3] The year in which women received the right to vote can be found in the 2009 Human Development Report.

serve as a signal for women that becoming a minister or an MP is a reachable goal, thus increasing the supply of women interested in government positions. At the same time, there is no reason to expect that either of these variables should affect current reform efforts other than through the representation of women in the cabinet of ministers.

As a second way to address endogeneity, we run a set of regressions that use 1995 values, rather than contemporaneous values of the explanatory variables[4].

Results

We next turn to the descriptive statistics. Table 1 gives the descriptive statistics of our dependent variables.

Table 1: descriptive statistics of the dependent variables.

	#	Average	Std	Min	Max
Avg. Regulatory Quality	141	-0.04	0.94	-2.08	1.85
Regulatory Quality Reform	141	0.02	0.68	-2.13	1.86
Avg. Gov'nment Effectiveness	141	-0.04	0.98	-1.74	2.29
Gov'nment Effectiveness Reform	141	-0.04	0.42	-1.40	1.03

As one can see, the average Regulatory Quality variable and the average Government Effectiveness variable are standardized variables, hence the (approximately) zero average and the (approximately) unit standard deviation. The standard deviation of the reform variables is less than one but is still substantial.

Table 2 focuses on the explanatory variables. In 1995, the average proportion of female ministers was low, at about 7%. Over time, female representation in the cabinet of ministers increased, bringing the average over the period to 12.5%. The average share of women among MPs is similar at 13.6% and, by 1996, women had had, on average, about 50 years the right to vote. Note further that there is considerable variation in all our explanatory variables.

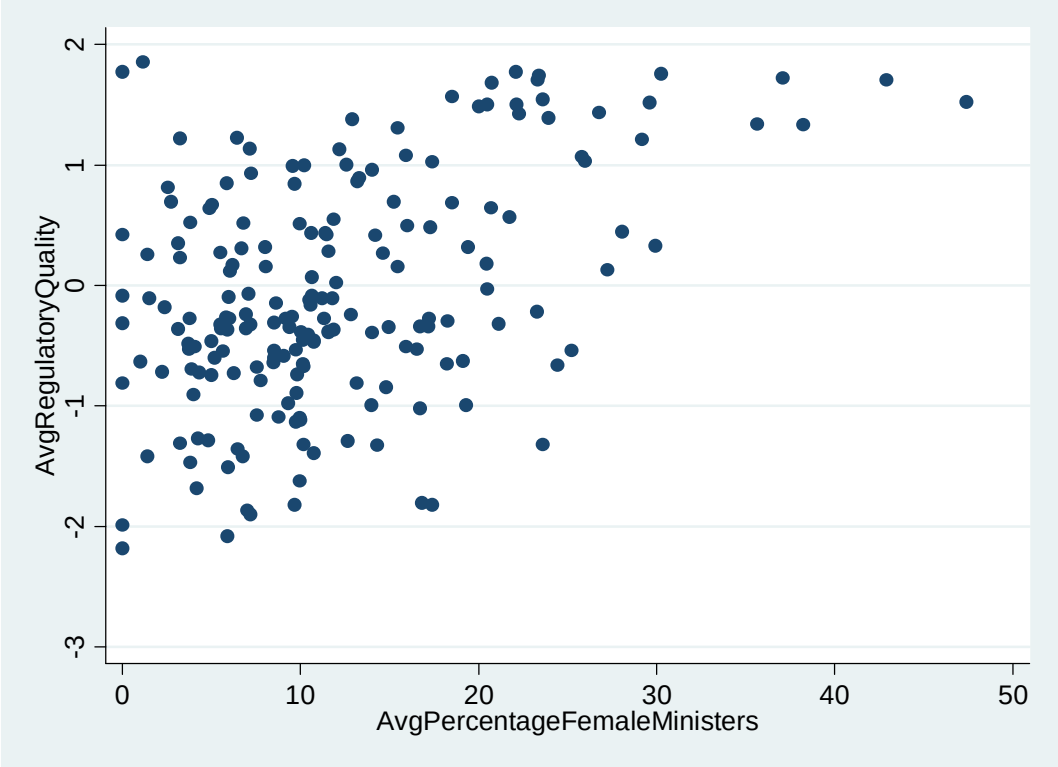
[4] One exception on this is the minimum growth rate over the period.

Table 2: descriptive statistics of the explanatory variables.

	#	Average	Std	Min	Max
Average share of Female Ministers	141	12.5	8.4	0	47.4
Share of female ministers in 1995	137	7.2	8.0	0	47.8
Average share of female MPs	141	13.6	8.8	0	43.96
# years women have right to vote at beginning of 1996	138	50.7	20.5	0	103
Log Average Per Capita GDP	141	7.6	1.6	4.7	10.6
Log Per Capita GDP in 1995	139	7.35	1.61	4.1	10.5
Lowest GDP Growth	141	-7.05	10.9	-51	5
Average Polity2 Index	141	3.33	6.28	-10	10
Polity2 Index in 1995	140	2.72	6.79	-10	10
Ethno-Linguistic Fractionalization	141	0.46	0.27	0	0.95
Initial Regulatory Quality	141	-0.023	0.96	-3.13	1.66
Initial Government Effectiveness	141	-0.013	1.00	-1.78	2.64

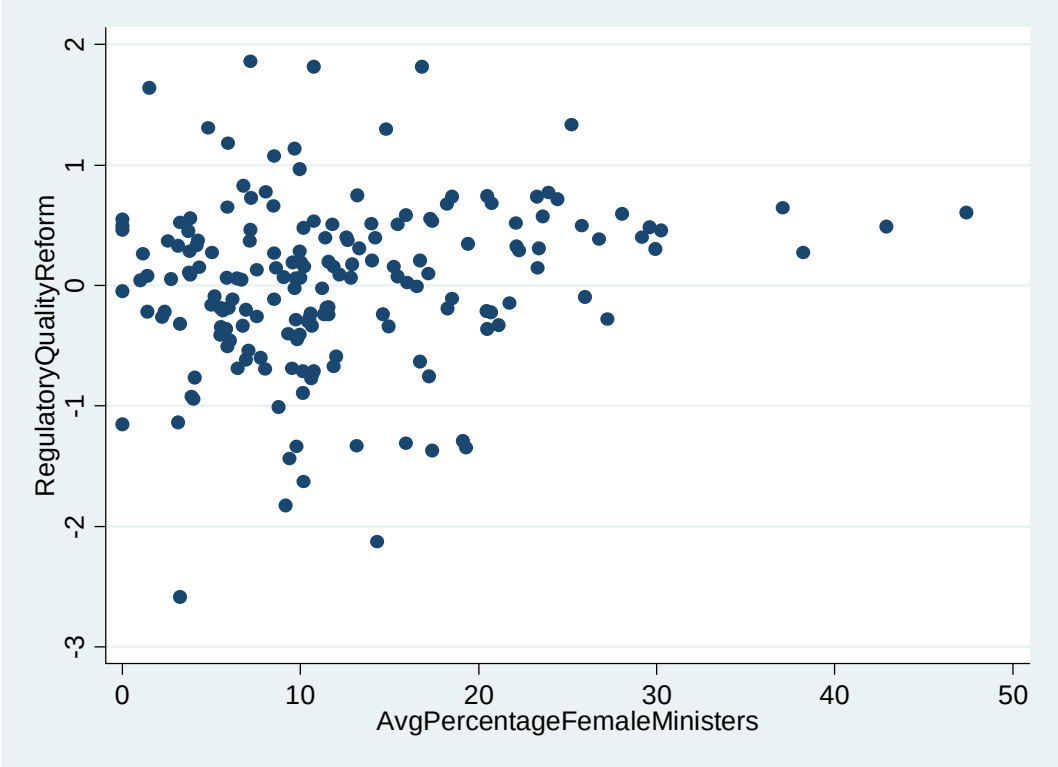
To get a first feel of the relations between our main variables of interest, we graph two scatter plots. A first scatter plot graphs the average percentage of female ministers between 1996 and 2008 against the average regulatory quality in this period. The correlation between these variables is strongly positive (0.45), indicating that countries with a high percentage of female ministers are typically also countries with relatively high regulatory quality. At the same time, the graph also shows that even with little or no female ministers one can score high on regulatory quality (like Singapore or Hong Kong) but also that no country with more than 26% female ministers scores bad in terms of regulatory quality.

Figure 1: Average Regulatory Quality versus average percentage of female ministers.



The second scatter plot graphs the average percentage of female ministers between 1996 and 2008 against the change in regulatory quality between these 2 years. There is a positive correlation between these two variables (0.17) if anything, suggesting that reforms are positively related to the presence of female ministers in the government.

Figure 2: Change in Regulatory Quality versus average percentage of female ministers.



Using government effectiveness instead of regulatory quality does not change the results much – the correlation of the average level of female ministers with the average level of our governance indicators is substantial at 0.49, while the correlation with reforms is much smaller, and even slightly negative at -0.05.

Of course, the above graphs and correlations do not control for any other variables that might affect (changes in) regulatory quality or government effectiveness.

We therefore next run regressions that correspond to the above graphs and correlations but control for the control variables described above.

Table 3: Regression results for basic specifications (1) and (2)

	Avg. Regulatory Quality	Regulatory Quality Reform	Avg. Gov'nment Effectiveness	Gov'nment Effectiveness Reform
Avg. Share of Female Ministers	0.014**	0.011*	0.024***	0.002
	(2.60)	(1.96)	(5.30)	(0.49)
Log Avg. Per Capita GDP	0.373***	0.286***	0.442***	0.180***
	(11.37)	(7.41)	(12.83)	(5.05)
Avg. Polity2	0.044***	0.026***	0.023***	0.013**
	(4.78)	(2.65)	(2.90)	(2.19)
Ethno-Ling. Fractional.	0.002	-0.146	0.003	0.032
	(0.01)	(-1.02)	(0.02)	(0.24)
Lowest GDP Growth		-0.011**		-0.007**
		(-2.57)		(-2.18)
Initial Regulatory Quality		-0.633***		
		(-7.89)		
Initial Gov'nment Effectiveness				-0.356***
				(-5.62)
constant	-3.185***	-2.397***	-3.759***	-1.544***
	(-13.70)	(-8.07)	(-14.14)	(-5.03)
Adjusted R^2	0.744	0.497	0.786	0.271
N	141	141	141	141

OLS regressions. T-statistics are in parenthesis. Robust standard errors are used. * corresponds to 10% significance level, ** to 5% and *** to 1%.

Column one regresses the average Regulatory Quality on the average percentage of female ministers in the government, the logarithm of the average GDP per capita (in constant US$), the average level of the polity2 index and the level of ethno-linguistic fractionalization. All variables are averages over the period 1996-2008, with the exception of the last variable which is measured in 1985[5]. We find a positive effect of GDP, indicating that richer countries are the countries with a higher regulatory quality, and of the level of democracy as measured by the polity2 index. We do not find that fractionalization reduces the level of regulatory quality.

[5] This variable is only available for the year 1985 but is likely to be very stable over time.

As far as our main variable of interest is concerned, we find that having a higher percentage of women in the government goes together with having a higher level of regulatory quality. In our sample, the average percentage of women varies between zero and 47 percent, with an average of 12 and a standard deviation of 8. Ceteris paribus, and if one is willing to assuming causality, an increase of the average percentage of women in the government by 8 percent (one standard deviation) would increase the regulatory quality by 0.112 or one-tenth of a standard deviation of regulatory quality. Hence, the effect is fairly limited. We also experimented with a quadratic term to check whether there is a non-linear effect in the presence of women in the government but did not find evidence in favor of this. Overall, this result suggests that, at current levels of female representation in the government, increasing the percentage of women further would improve regulatory quality.

Next, we focus on reforms, i.e. changes in regulatory quality rather than levels of regulatory quality. In column 2, we therefore regress the change in regulatory quality between 1996 and 2008 on the same set of explanatory variables plus an indicator of crisis, i.e. the lowest level of GDP during this period, and the initial level of regulatory quality in 1996. Results remain largely unaffected: higher GDP and more democracy go together with more regulatory quality, as is having more female ministers. The effect of female ministers is even smaller, however, and less significant. Additional findings are that having a growth crisis stimulates reforms and that better regulated countries reform less.

Columns 3 and 4 present the results of similar regressions, using the government effectiveness indicator and the change therein, as the dependent variable. The results for the control variables are qualitatively similar, though the included variables explain less of the variation of the reforms in government effectiveness. As far as our main variable of interest is concerned, having a higher percentage of women in the government also goes together with having a significantly higher level of government effectiveness, though the positive effect on changes in government effectiveness is insignificant.

Next, we add the average share of female MPs over the period 1996-2008 as an additional explanatory variable which measures a second way women are represented in the policy arena.

Table 4: Regression results for extended specifications (3) and (4)

	Avg. Regulatory Quality	Regulatory Quality Reform	Avg. Gov'nment Effectiveness	Gov'nment Effectiveness Reform
Avg. Share of Female Ministers	0.013	0.009	0.012*	-0.004
	(1.61)	(0.99)	(1.71)	(-0.74)
Avg. Share of Female MPs	0.002	0.002	0.015**	0.009
	(0.22)	(0.26)	(2.39)	(1.59)
Log Avg. Per Capita GDP	0.372***	0.285***	0.435***	0.182***
	(11.41)	(7.37)	(13.58)	(5.10)
Avg. Polity2	0.045***	0.026***	0.025***	0.015**
	(4.78)	(2.64)	(3.17)	(2.42)
Ethno-Ling. Fractional.	0.002	-0.146	0.005	0.03
	(0.01)	(-1.03)	(0.03)	(0.24)
Lowest GDP Growth		-0.011**		-0.007**
		(-2.57)		(-2.19)
Initial Regulatory Quality		-0.633***		
		(-7.84)		
Initial Gov'nment Effectiveness				-0.374***
				(-5.74)
constant	-3.186***	-2.396***	-3.773***	-1.601***
	(-13.71)	(-8.09)	(-15.20)	(-5.20)
Adjusted R^2	0.742	0.494	0.794	0.284
N	141	141	141	141

OLS regressions. T-statistics are in parenthesis. Robust standard errors are used. * corresponds to 10% significance level, ** to 5% and *** to 1%.

The average share of female MPs is quite highly correlated (0.7) to the average share of female ministers, so it is not surprising that the significance levels of the average share of female ministers somewhat decreases. Still, the average share of female ministers remains significantly positive at the 11% level for regulatory quality and at the 9% level for the government effectiveness indicator. But it is no longer significant for reforms in either of these areas. Instead the share of female MPs is found to correlate with the level and, to some extent, the change in government effectiveness but not with the level or change in regulatory quality.

Next we use the number of years women have had the right to vote and a dummy reflecting whether or not a woman presided over the House of Representatives by 1996, as instruments for the average share of female ministers and the average share of female MPs. The instruments are fairly strongly correlated with the variables they instrument (correlations between 0.3 and 0.4) and are both significantly positive, at 5% significance or less, when the average share variables are regressed on the instruments and the other explanatory variables in the first stage of the IV regression.

Table 5: Instrumental Variables Regression

	Avg. Regulatory Quality	Regulatory Quality Reform	Avg. Gov'nment Effectiveness	Gov'nment Effectiveness Reform
Avg. Share of Female Ministers	-0.048	-0.062	-0.118	-0.005
	(-0.58)	(-0.55)	(-0.93)	(-0.10)
Avg. Share of Female MPs	0.043	0.055	0.108	0.01
	(0.65)	(0.67)	(1.15)	(0.25)
Log Avg. Per Capita GDP	0.381***	0.273***	0.448***	0.182***
	(9.62)	(5.30)	(7.86)	(4.77)
Avg. Polity2	0.068**	0.05	0.073	0.015
	(2.30)	(1.26)	(1.56)	(0.83)
Ethno-Ling. Fractional.	0.037	-0.118	0.075	0.031
	(0.21)	(-0.63)	(0.29)	(0.24)
Lowest GDP Growth		-0.009		-0.007*
		(-1.45)		(-1.71)
Initial Regulatory Quality		-0.592***		
		(-6.20)		
Initial Gov'nment Effectiveness				-0.375***
				(-4.40)
constant	-3.149***	-2.212***	-3.709***	-1.603***
	(-12.73)	(-5.08)	(-8.84)	(-4.32)
Adjusted R^2	0.613	0.143	0.243	0.284
N	141	141	141	141

IV regressions. T-statistics are in parenthesis. Robust standard errors are used. * corresponds to 10% significance level, ** to 5% and *** to 1%.

Instrumenting our variables of interest turns their coefficients insignificant, suggesting there is no causal influence of the representation of women in power on regulatory quality or government effectiveness, nor on reforms. The opposite signs and similarity of size of the two variables, combined with the fact that the variables that were instrumented were fairly highly correlated suggests the presence of multicollinearity. However, when dropping either the share of female MPs or the share of female ministers from the instrumental variables regression, the included variable of interest (which then captures the effect of both), though always positive, remains insignificant, confirming our conclusion that no causal effect can be found in our sample. As an alternative way to tackle endogeneity, we next regress our dependent variables on the initial values of our explanatory variables.

Table 6: Regression using initial values of explanatory variables

	Avg. Regulatory Quality	Regulatory Quality Reform	Avg. Gov'nment Effectiveness	Gov'nment Effectiveness Reform
Share of Female Ministers 1995	0.012	0.015	0.018**	0.006
	(1.54)	(1.57)	(2.12)	(0.91)
Share of Female MPs 1995	0.003	-0.001	0.011	0
	(0.35)	(-0.07)	(1.40)	(-0.00)
Log Per Capita GDP 1995	0.367***	0.253***	0.436***	0.157***
	(11.53)	(6.19)	(11.63)	(4.33)
Polity2 1995	0.039***	0.025***	0.019**	0.010*
	(4.83)	(3.04)	(2.52)	(1.67)
Ethno-Ling. Fractional.	-0.052	-0.18	-0.097	-0.079
	(-0.31)	(-1.11)	(-0.61)	(-0.55)
Lowest GDP Growth		-0.016***		-0.009***
		(-3.46)		(-2.67)
Initial Regulatory Quality		-0.586***		
		(-6.77)		
Initial Gov'nment Effectiveness				-0.356***
				(-5.53)
constant	-2.897***	-2.056***	-3.450***	-1.274***
	(-12.12)	(-6.54)	(-12.28)	(-4.22)
Adjusted R^2	0.768	0.47	0.814	0.231
N	123	123	123	123

OLS regressions. T-statistics are in parenthesis. Robust standard errors are used. * corresponds to 10% significance level, ** to 5% and *** to 1%.

This second way of tackling possible endogeneity leaves a somewhat stronger role for female representation in government. The coefficient of the share of female ministers is always positive, flirts with significance in two specifications and is one time clearly significant. And the size of the effect is similar to what we found in specification (1) and (2). The share of female MPs, however, is never found to be significant[6].

Conclusions

In this paper, we test whether the gender composition of a government affects the quality of governance and the reform efforts of this government, thus contributing to the literature that investigates how the participation of women in political life affects policy outcomes and to the literature that investigates the determinants of reforms.

We find that the coefficients on the two indicators of female representation are found to be positive in most regressions, suggesting a positive, albeit small, effect on government quality and reforms. This effect is more often significant for government quality than for reforms, and when including both the share of female ministers and the share of female MPs, the former variable is more often significant. When addressing the endogeneity issue however, significance levels of both variables drop substantially and in most cases become insignificant. Hence, overall we do not find strong evidence that female ministers or female MPs have a positive or negative effect on the quality of governance or on reform efforts. Our results thus do not provide support for the claim that 'conducting reforms is not women's business', they rather suggest that reform is as much women's business as it is men's business.

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[6] The differences in results between the two ways of tackling endogeneity are not a result of the slightly different sample size – restricting the IV regression to the smaller sample size does not qualitatively change its results.

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Data Appendix

1995: Human Development Report 1996 (p 156, p197) – 'women in government at ministerial level' - Including elected heads of state and governors of central banks. For countries for which the value is zero, no women ministers were reported by the United Nations Division for the Advancement of Women; Source: calculations by the United Nations DIVIsion for the Advancement of Women, based on data from Worldwide Government Directorles 1995.

1996: Human Development Report 1999 (p 238) – 'women in government at ministerial level' - Including elected heads of state and governors of central banks. For countries for which the value is zero, no women ministers were reported by the United Nations Division for the Advancement of Women; Source: UN 1996a.

1998 Human Development Report 2000 (p 264) – 'women in government at ministerial level' - Ministerial level includes ministers, secretaries of state and heads of central banks and cabinet agencies. ; Source: UN 2000b.

2001 Human Development Report 2001 (p 234) – 'women in government at ministerial level' Data were provided by states based on their definition of national executive and may therefore include women serving as ministers and vice ministers and those holding other ministerial positions, including parliamentary secretaries. Source IPU 2001.

2005 IPU Women in Politics 2005 Poster – Women in Ministerial Positions. The total includes deputy Prime Ministers and Ministers. Prime Ministers were also included when they held ministerial Portfolios. Vice-Presidents and heads of ministerial-level departments or agencies were also included when exercising a ministerial function in the Government structure. Source:

Information obtained from Governments, Permanent missions at the United Nations, or publicly available information as indicated (*).

2008 IPU Women in Politics 2008 Poster – Women in Ministerial Positions. The total includes Deputy Prime Ministers and Ministers. Prime Ministers were also included when they held ministerial portfolios. Vice-Presidents and heads of governmental or public agencies have not been included. Source: Information obtained from Governments, Permanent Missions to the United Nations, or publicly available information which is indicated as (*).